

**Figure 1. Examples of Functionalized Nucleotides**

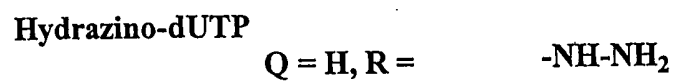
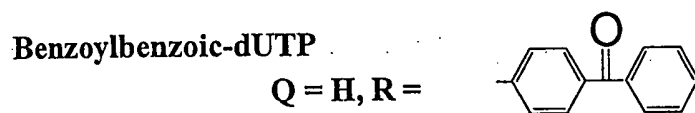
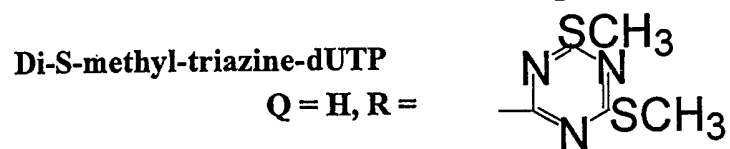
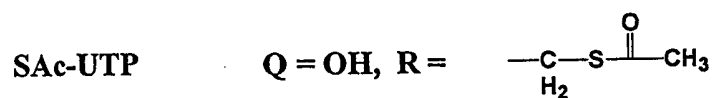
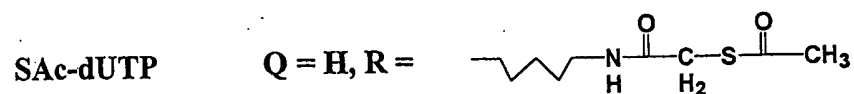
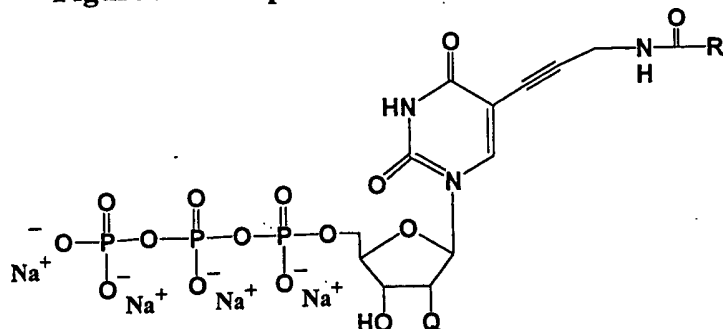


Figure 2: Exemplary linkers and points of attachment to the nucleobase

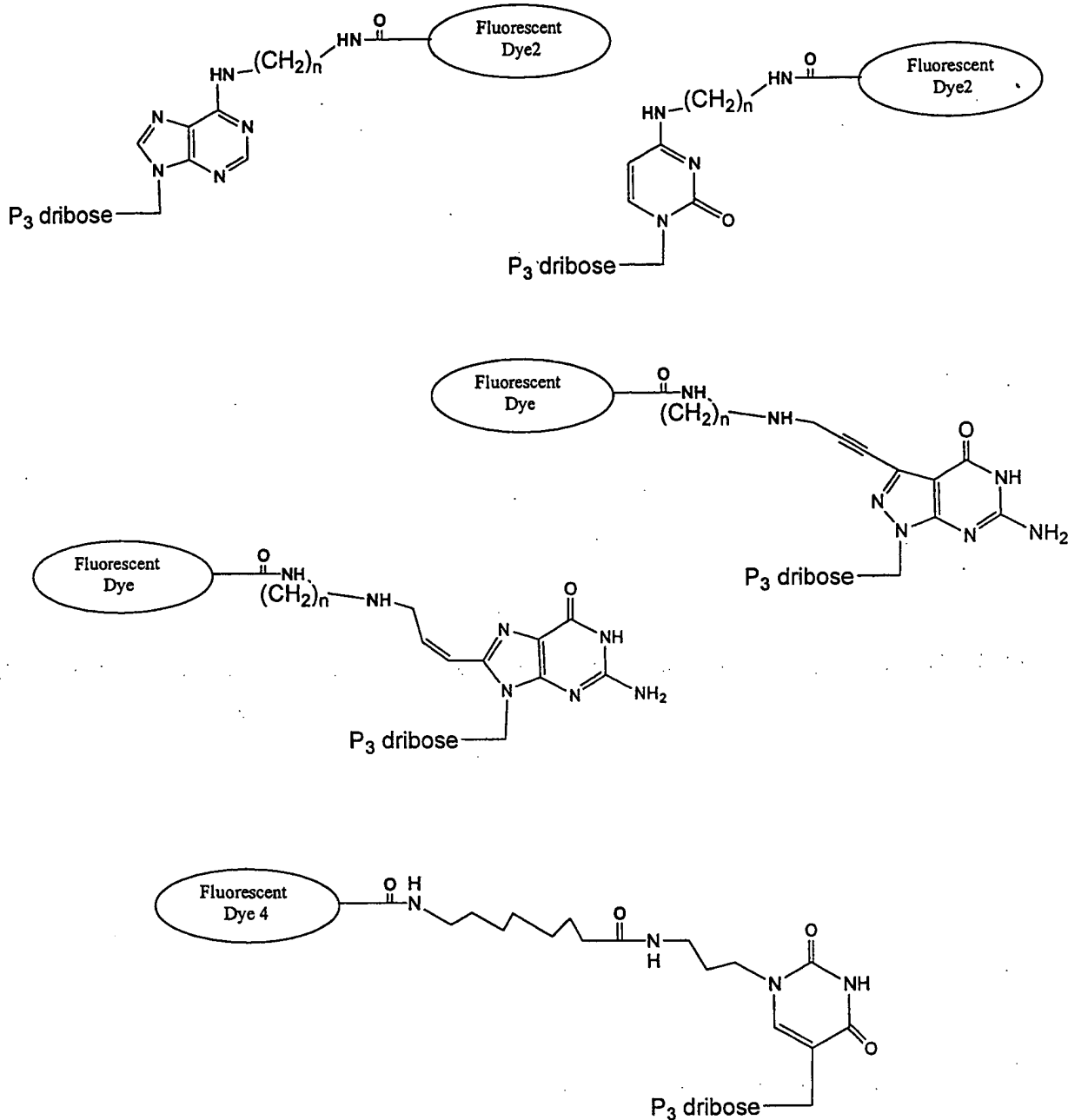


Figure 3

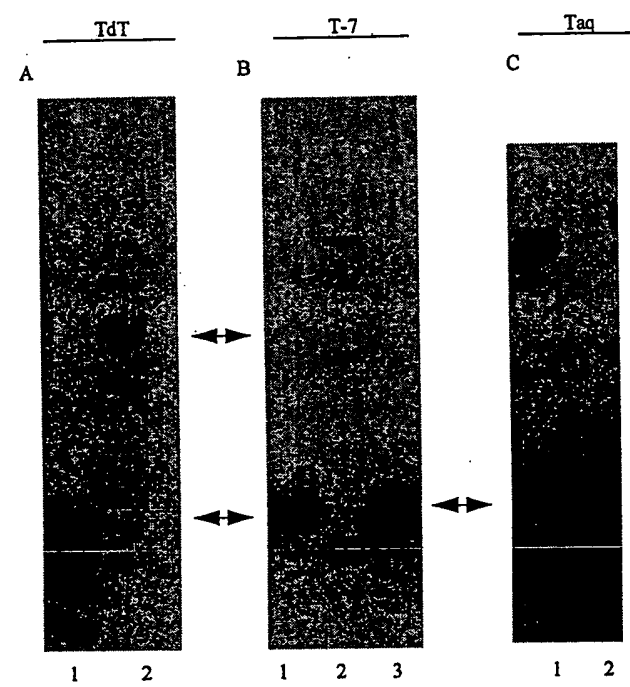


Figure 4

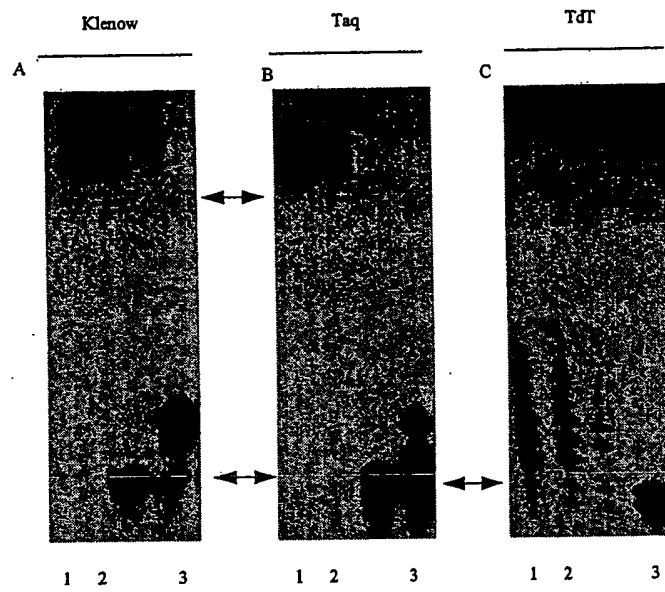


Figure 5

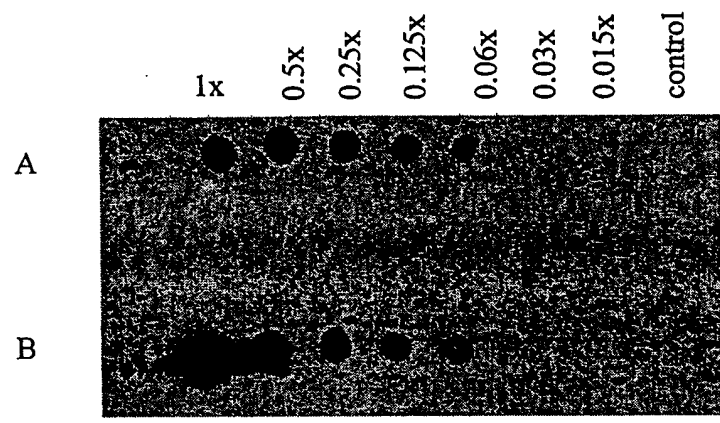


Figure 6

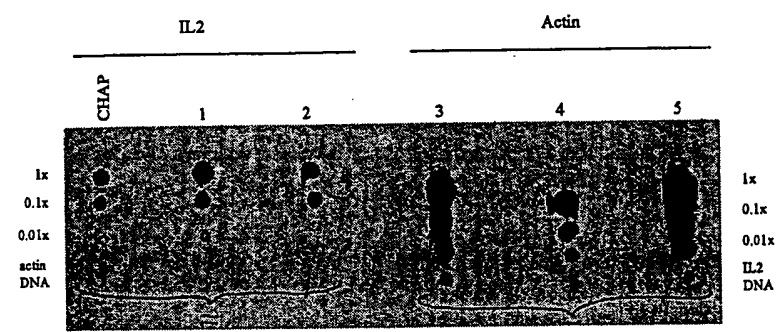


Figure 7

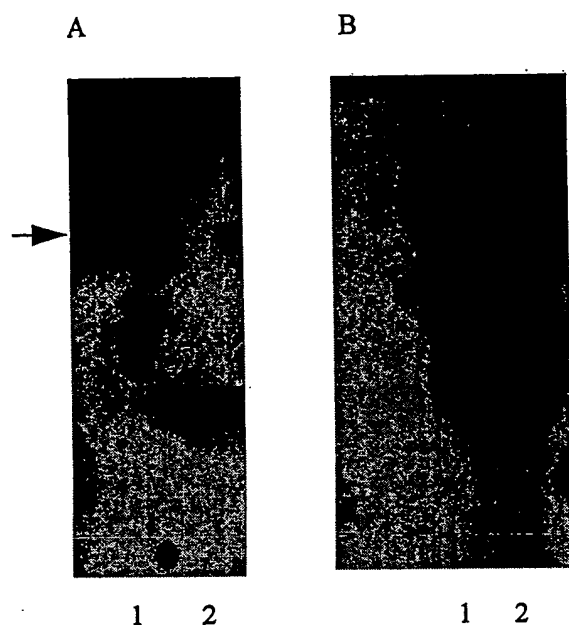


Figure 8

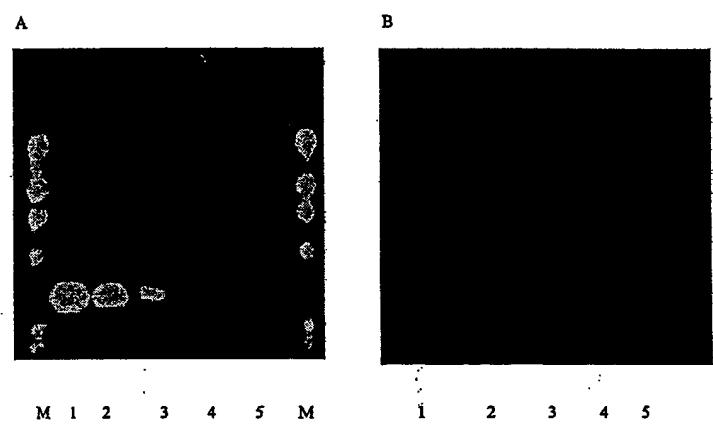




Figure 9

# Synthesis of bis-methylthio-1,3,5-triazine

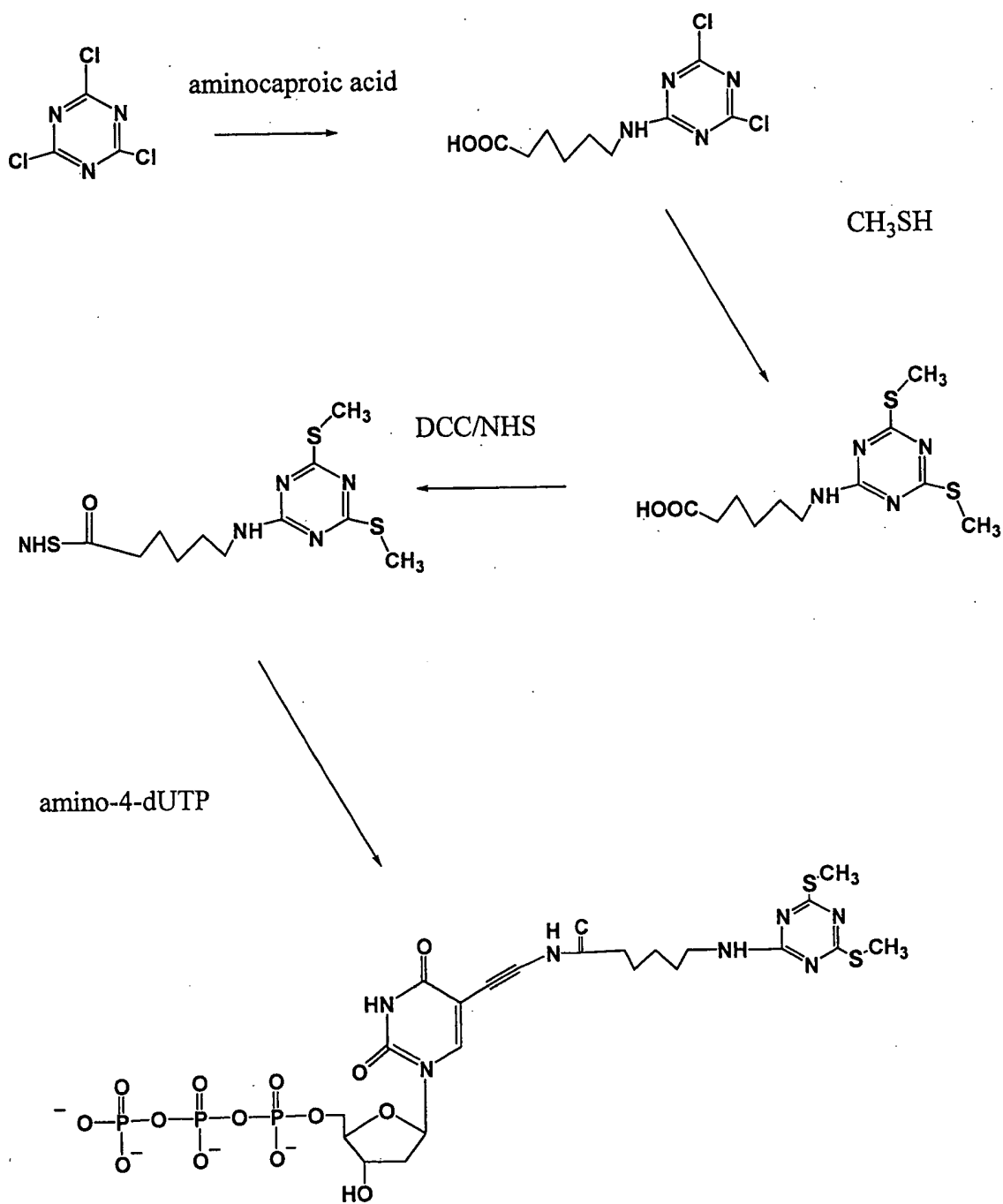
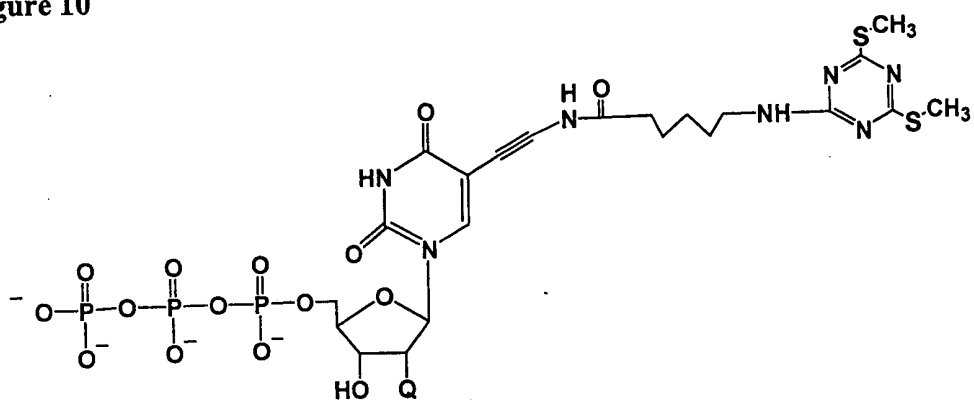
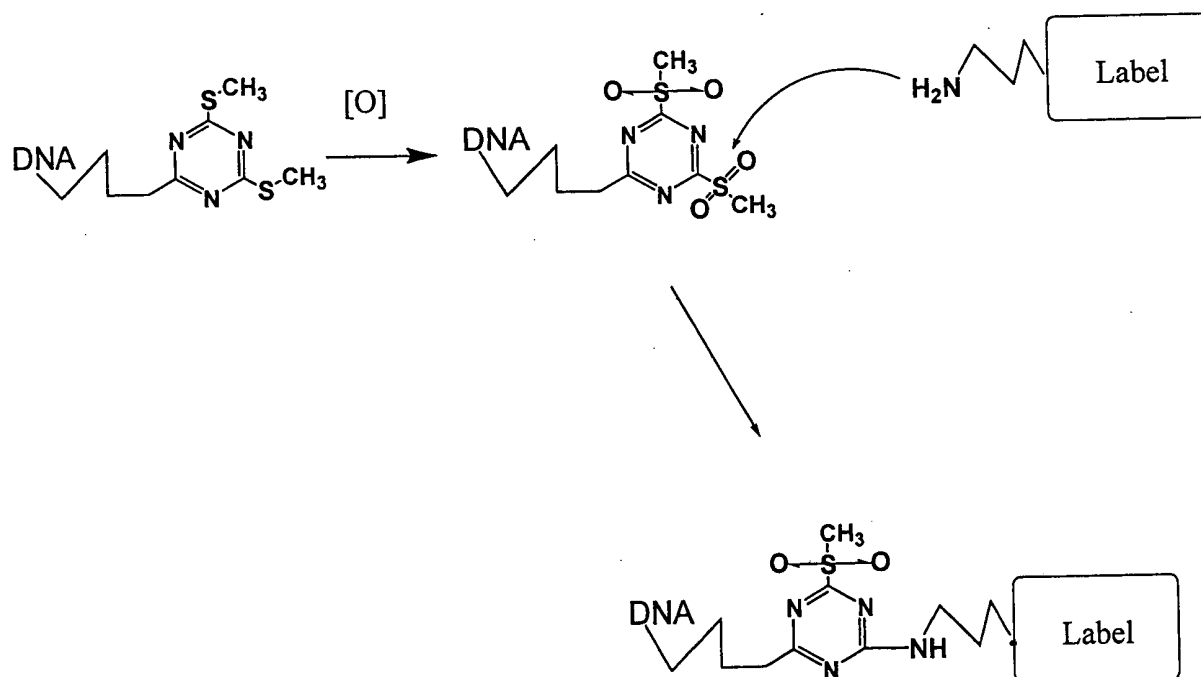


Figure 10

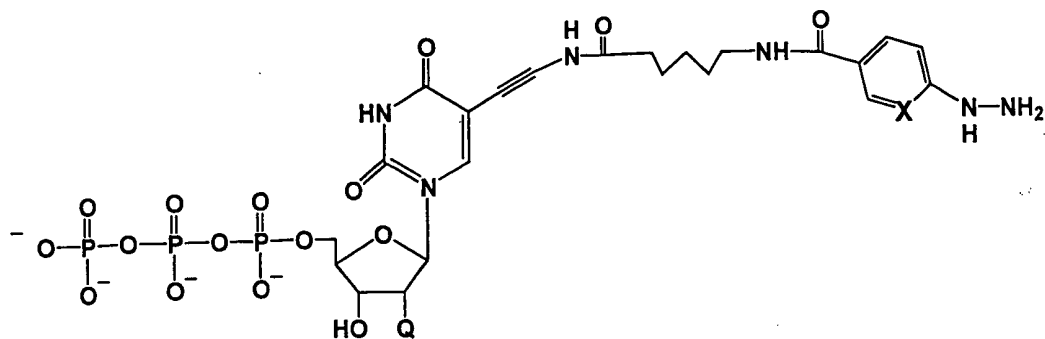


bis-methylthio-triazinyl-dUTP

Activation and coupling for methylthio-triazinyl-dUTP:



**Figure 11**



**Hydrazino-dUTP**

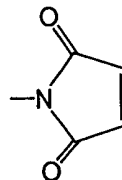
**X = N      HN-dUTP (hydrazinoterephthalate)**

**X = CH      HTP-dUTP (hydrazinoterephthalate)**

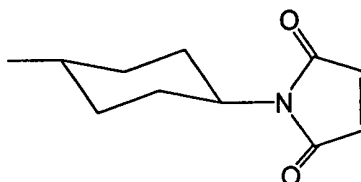
**Figure 12**

**ADDITIONAL FUNCTIONAL GROUPS USED TO EVALUATE LABELING APPROACHES**

Maleimidyl



Maleimido-methylcyclohexane (MCC)



Pyridine-dithioalkyl

(when  $n=2$ , Pyridine dithiopropionate, PDP)

